REMARKS

Claims 65-69 and 75-100 are pending in the present application. In the Office Action dated June 29, 2006, claims 65-69 and 70-100 were provisionally rejected on the ground of non statutory obviousness-type double patenting as being unpatentable over claims 70-100 of co-pending U.S. Patent Application No. 10/817,495 to Hudson ("Hudson"). Claims 65-67, 75, 76, 85-90 and 98-100 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,647,989 to Hayashi et al. ("'989 patent"). Claims 65-67, 75, 76, 85-90 and 98-100 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,077,437 to Hayashi et al. ("'437 patent"). Claims 68, 69, 77-84 and 91-97 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the '437 patent as applied to claims 65 and 90, and in further view of U.S. Patent No. 6,106,714 to Chiu et al. ("Chiu").

The embodiments disclosed in the present application will now be discussed in comparison to the cited references. Of course, the discussion of the disclosed embodiments, and the discussion of the differences between the disclosed embodiments and the cited references, does not define the scope or interpretation of any of the claims. Instead, such discussed differences merely help the Examiner appreciate important claim distinctions discussed thereafter.

Double Patenting

A terminal disclaimer will not be filed at this time. The decision on whether to file a terminal disclaimer will be made pending resolution of the rejections below.

Claim Rejection – 35 U.S.C. 102

The present application is generally directed to methods and apparatuses for making and using slurries for planarizing microelectronic-device substrate assemblies in mechanical and/or chemical-mechanical planarization (CMP) processes. In one embodiment, the slurry manufacturing assembly includes a first feed line for containing the first flow of the first solution having a plurality of first abrasive particles of a first size, and a second feed line for containing the second flow of the second solution having a plurality of second abrasive particles of a second size, where the first abrasive particle size is different than the second abrasive particle size. A first removal unit is coupled to the first feed line to selectively remove a plurality of the first abrasive particles, and a second removal unit is coupled to the second feed line to selectively remove a plurality of the second abrasive particles. A combination feed line is operatively coupled to the first removal unit

and the second removal unit to combine the flow of the first and second solutions after removing the abrasive particles from the respective solutions.

The Examiner has cited the Hayashi et al. references, '989 and '437. Both Hayashi '989 and '437 disclose a planarizing apparatus including a slurry manufacturing assembly for recycling a used planarizing solution. The recycled slurry is filtered in order to remove impurities in the recycled slurry, so that the recycled slurry composition corresponds to the composition of the original slurry. The recycled slurry is then mixed with a slurry from a second line that is not recycled. The second line is not filtered because it is fresh slurry. Therefore, the Hayashi '989 and '437 references do not disclose or fairly suggest using a filtration membrane for fresh slurry. To the contrary, the references teach filtering only for the purpose of making the recycled slurry of a similar composition as the fresh slurry. In fact, the Hayashi '437 reference teaches away from using a filter on the fresh slurry. The purpose of using the filter for the recycled slurry is to remove any impurities in the solution that were presumably introduced to the solution during planarization. Column 13, lines 29-55 indicate that the filtered recycled slurry is no different from the fresh slurry. Because the stated goal of using the filter on the recycled slurry is to obtain a composition within the recycled slurry that is similar to the fresh slurry, the references suggest that there would be no reason to use a filter on the fresh slurry. In addition, Hayashi '989 and '437 do not disclose or fairly suggest using two slurries with two different sized particles in the respective slurries. Rather, Hayashi '989 and '437 teach using a recycled slurry and a fresh slurry together, but there is no indication there are different sized particles in the respective slurries.

Turning now to the claims, the patentably distinct differences between the cited references and the claim language will be specifically pointed out. Currently amended independent claims 65 and 90 recite, in part, "a first feed line for containing a flow of a first solution having a plurality of first abrasive particles, the first solution not having been previously used to planarize a microelectronic substrate." The Hayashi references do not disclose this limitation. Rather, the Hayashi references refer only to filtering recycled slurry. In contrast, presently amended independent claims 65 and 90 require that the slurry is fresh or not having been previously used to planarize a microelectronic substrate.

Similarly, currently amended independent claims 65 and 90 recite, in part, "the first abrasive particle size being different than the second abrasive particle size." The Hayashi references do not disclose this limitation. In fact, the '989 Hayashi reference states that the

composition of the renewed polishing liquor 14a corresponds to that of the original silica abrasive suspension 26. Therefore, the particle sizes for the fresh slurry and the recycled slurry are likely not different. In contrast, presently amended independent claims 65 and 90 require that the particle sizes of the two slurries be different. Therefore, presently amended independent claims 65 and 90 are allowable over the Hayashi references.

Claim Rejection – 35 U.S.C. 103

The Examiner has cited a rejection under 35 U.S.C. 103(a) over Hayashi et al. '437 in view of Chiu et al. for dependent claims 68, 69, 77-84, and 91-97. Because presently amended independent claim 65 was amended to include the limitation from 68 and presently amended independent claim 90 was amended to include the limitation of claim 91, this rejection will be discussed in reference to independent claims 65 and 90. The Chiu reference is directed toward a CMP process that includes a filter apparatus for filtering slurry. However, Chiu does not specify that the slurry is fresh slurry rather than recycled slurry. Chiu does indicate that the slurry is filtered in order to remove impurities. Similarly, the Hayashi references described filtering recycled slurry in order to remove impurities. This implies that the Chiu slurry is recycled because fresh slurry would presumably not have impurities. Therefore, the Chiu reference does not disclose or fairly suggest using a filter with fresh slurry.

The Examiner cited the Hayashi '437 reference to indicate a bimodal distribution of particles as shown in Figures 3a, 3b, and 4. It is true that the graphs in Figures 3a, 3b, and 4 show a bimodal distribution of particles; however, the bimodal distribution of particles is of particles within one solution of slurry, either the polishing agent recovery solution, Fig. 4, or the polishing agent original solution, Fig.3. Hayashi '437 does not disclose different sized abrasive particles in separate solutions that are combined into a single flow in a combination feed line. Rather, Hayashi '437 discloses different sized abrasive particles within one solution. Therefore, Hayashi '437 does not disclose or fairly suggest a first abrasive particle size within a first solution and a second abrasive particle size within a second solution.

Turning now to the claims, the patentably distinct differences between the cited references and the claim language will be specifically pointed out. Currently amended independent claims 65 and 90 recite, in part, "a first feed line for containing a flow of a first solution having a plurality of first abrasive particles of a first size,....; a second feed line for containing a separate flow of a second solution having a plurality of second abrasive particles of a second size, the first

abrasive particle size being different than the second abrasive particle size." The Hayashi '437 reference does not disclose or fairly suggest this limitation. Rather, the Hayashi '437 reference discloses using a bimodal distribution of particles within one solution. In contrast, the presently amended independent claims 65 and 90 require a first particle size within a first solution and a second particle size within the second solution, the first particle size being different than the second particle size. Therefore, presently amended claims 65 and 90 are allowable over Hayashi '437 in view of Chiu.

Claims depending from claims 65 and 90 are also allowable due to depending from an allowable base claim and further in view of the additional limitations recited in the dependent claims.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a timely Notice of Allowance are earnestly solicited.

Respectfully submitted,

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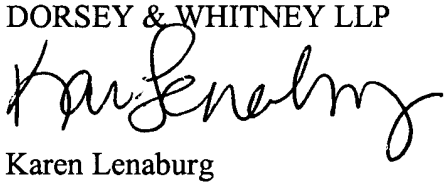

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